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REMARKS

Claims 1-3, 5-7 and 9-20 are presently pending.

Objection to the Specification

The specification has been objected to because of the Appendix, comprising pages 23-42 of the application. The Appendix has been converted to CD-ROM format and a CD is submitted herewith, in duplicate.

Rejection of Claims under 35 U.S.C. § 103

The focus of this response is whether the references cited by the Examiner include "a data repository for facilitating synchronization of user information maintained among more than two data sets, said data repository storing user information that is a super-set of all user information for which any user desires synchronization support". The Examiner currently is combining two references to meet this limitation, U.S. Patent No. 5,684,990 issued to Boothby (hereinafter "Boothby") in view of U.S. Patent No. 5,706,509 issued to Man-Hak Tso (hereafter "Man-Hak Tso"). However, neither of the references include the super-set feature for more than two data sets, either explicitly or implicitly, so combining the references cannot meet the limitation.

The Examiner clearly agrees that, "Boothby does not explicitly disclose establishing a data repository for facilitating synchronization of user information maintained more than two data sets, said data repository storing user information that is a superset of all user information for which any user desires synchronization support; and receiving a request for synchronizing at least one data set." The Examiner makes no argument that Boothby implicitly includes a super-set data repository for more than two data sets. Therefore, Boothby (admittedly) does not supply the missing limitation.

Man-Hak Tso does not include a super-set repository either. The Examiner relies on passages from columns 4 (more than two data sets, synchronized pairwise) and 6 (receiving requests, to be applied in turn with every other data set) that are reproduced on the following page.

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Although this synchronization process is illustrated with only two data sets to synchronize, namely exemplary data sets D0 and D1, the present invention can easily be extended to synchronize more than two data sets. For more than two data sets, synchronization can be applied to pairs of data sets until all sets are equivalent. For instance, given four data sets D1', D2', D3', and D4', each data set may be synchronized in turn with every other data set. That is, D1' is synchronized in turn with D2', D3', and D4', then D2' is synchronized with D1', D3' and D4', etc. A more efficient implementation would run the Change Detection Method outlined in this invention on each of the data sets, and then merge the Change Lists (CL1, CL2, CL3, CL4). Thus, the present invention's method and apparatus for a two way synchronization also provides synchronization among any number of data sets (i.e. files).

FIGS. 5a-5c are exemplary embodiments of a system block diagram with the implementation of the synchronization method and apparatus of the present invention. The present invention may be used to synchronize data between data sets D0 and D1, belonging to application app0 and application app1 respectively. A variety of configurations are possible. For example, D0 may reside in a satellite device (e.g. a notebook or a hand held computer, such as an Apple® Newton, a Sharp® Wizard, or a Casio® BOSS) and D1 may reside on a host computer (e.g. a desktop or a notebook PC) as illustrated in FIG. 5a. Further, D0 and D1 may reside on the same system as illustrated in FIG. 5b. D0 and D1 may also reside on two different PC's linked by a computer network as illustrated in FIG. 5c. In addition, app0 and app1 may be the same application. The present invention may be implemented for synchronization of any two or more data sets and is not limited to the exemplary configurations illustrated herein.

Applicants find nothing in these passages which even arguably includes a super-set of all user information for which any user desires synchronization support. First, it isn't there. Second, it isn't a logical extension of Man-Hak Tso, because synchronization in Man-Hak Tso is expressly pairwise between individual data sets. Col. 4, lines 51-54. Man-Hak Tso teaches away from a central repository, preferring to merge change lists and apply the merged change list to pairwise synchronization in a manner that is suggested but not clearly disclosed. Col. 4, lines 56-59. Man-Hak Tso uses a pairwise synchronization or change list merging to avoid creation of a "data repository storing user information that is a super-set of all user information for which any user desires synchronization support". Indeed, Man-Hak Tso emphasizes that the disclosed synchronization reduces file size, for instance at col. 7, lines 61-64, which teaches away from creating a super-set data repository.

It should not be surprising that Man-Hak Tso lacks the claimed features and sophistication of this invention. Man-Hak Tso laments how primitive synchronization was in 1995, throughout columns 1-2. For instance, "The main synchronization technique available today [in 1995] is referred to as file synchronization. ... A typical implementation uses time stamps which a computer's file system attaches to each file to determine which files are now or have been modified. The older files are overwritten with the newer files by the same name." Col. 1, lines 27-33. The principal teaching of Man-Hak Tso is a way to synchronize using a change list (or merged change lists) on a record-by-record basis, across files from different applications, instead of using file-by-file updating. Man-Hak Tso further emphasizes the difference between synchronizing

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instances of data managed by a single application and instances of data managed by different applications, at col. 2, lines 35-42. Man-Hak Tso does not use or suggest use of a data repository.

The Examiner cites a passage from column 15 of Man-Hak Tso to motivate combination of the references to meet the missing limitation. The passage reads:

> What has been described is a method and an apparatus for
> performing record level synchronization on two or more
> applications. Record level synchronization overcomes the
> limitations of the prior art technique by synchronizing the
> individual data items (records) in a file. It uses knowledge of

Applicants find nothing in this passage describing a super-set data repository. Record level synchronization, addressed by this passage, is found in Boothby, which is more sophisticated than the older Man-Hak Tso reference. This passage does nothing to motivate a "data repository storing user information that is a superset of all user information for which any user desires synchronization support".

As neither of the cited references include the claimed feature, neither would their combination. Nor does the passage from column 15, argued by the Examiner as motivating the combination, fill in what's missing.

Regarding all of the Section 103(a) rejections, the Examiner seems to have an outdated standard in mind for a *prima facie* case of obviousness. The MPEP in Sections 716.01(a) and 716.03(b) cites *In re Fielder* for propositions other than the proposition that the Examiner argues. What the MPEP now cites for the Examiner's burden of proving a *prima facie* case is *In re Lee*, not *In re Fielder*. It is fundamental, as indicated in MPEP Section 2143.01 (8th Ed. Rev. 2, June 2004), that the Examiner rely on some evidentiary quality suggestion to modify Boothby:

> Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

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The latest two updates to this section of the MPEP cite *In re Lee*, in which the Federal

Circuit clarified the need for evidentiary quality support of an Examiner's factual basis for

finding a teaching, suggestion or motivation in the prior art (as opposed to the

Examiner's opinion), 277 F.3d at 1343-44:

> As applied to the determination of patentability *vel non* when the issue is
> obviousness, "it is fundamental that rejections under 35 U.S.C. § 103 must be
> based on evidence comprehended by the language of that section." *In re
> Grasselli*, 713 F.2d 731, 739, 218 U.S.P.Q. (BNA) 769, 775 (Fed. Cir. 1983). ...
> "The factual inquiry whether to combine references must be thorough and
> searching." *Id*. It must be based on objective evidence of record. This precedent
> has been reinforced in myriad decisions, and cannot be dispensed with. [citation
> omitted] The need for specificity pervades this authority. *See, e.g., In re Kotzab*,
> 217 F.3d 1365, 1371, 55 U.S.P.Q.2D (BNA) 1313, 1317 (Fed. Cir. 2000)
> ("particular findings must be made as to the reason the skilled artisan, with no
> knowledge of the claimed invention, would have selected these components for
> combination in the manner claimed"); *In re Rouffet*, 149 F.3d 1350, 1359, 47
> U.S.P.Q.2D (BNA) 1453, 1459 (Fed. Cir. 1998) ("even when the level of skill in
> the art is high, the Board must identify specifically the principle, known to one of
> ordinary skill, that suggests the claimed combination. In other words, the Board
> must explain the reasons one of ordinary skill in the art would have been
> motivated to select the references and to combine them to render the claimed
> invention obvious."); *In re Fritch*, 972 F.2d 1260, 1265, 23 U.S.P.Q.2D (BNA)
> 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing
> obviousness of the combination "only by showing some objective teaching in the
> prior art or that knowledge generally available to one of ordinary skill in the art
> would lead that individual to combine the relevant teachings of the references").
> ... In its decision on Lee's patent application, the Board rejected the need for "any
> specific hint or suggestion in a particular reference" to support the combination of
> the Nortrup and Thunderchopper references. Omission of a relevant factor
> required by precedent is both legal error and arbitrary agency action.

The point that Applicants have made and continue to rely on is that no evidentiary

quality motivation has been supplied in any of the rejections in this case that would shift

the burden to the Applicants to supply extrinsic evidence of non-obviousness. Citation

of *In re Fielder* does not respond to Applicants' position.

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With this analysis of Man-Hak Tso and the standard imposed by *In re Lee* in mind, we respectfully traverse the Examiner's arguments.[1]

Regarding claim 1, the present application, at page 5, provides support and description in the Summary of Invention for using a super-set data repository.

> The GUD introduces a third data set, a middleware database. This third data set provides a super-set of the other two client data sets. Therefore, if the user now includes a third client, such as a server computer storing user information, the synchronization system of the present invention has all the information necessary for synchronizing the new client, regardless of whether any of the other clients are currently available. The system can, therefore, correctly propagate information to any appropriate client without having to "go back" to (i.e., connect to) the original client from which that data originated.

The super-set data repository of claim 1 is nowhere to be found in Boothby or Man-Hak Tso. Nor do the references teach or enable a data repository of user information for which any user desires synchronization support. Pairwise synchronization is not equivalent to using a superset database, as explained in the application, because pairwise synchronization requires immediate availability of the source dataset clients.

In the sections that follow, we generally follow the order in which the Examiner addressed the dependent claims, except where noted.

The Examiner treats **claims 2 and 16** collectively, but we focus on claim 2, because it propagates data to a different place than claim 16. Claim 2 addresses propagating data to the data repository. Boothby col. 3, lines 46-50 does not teach updating a data repository "storing user information that is a super-set of all user information for which any user desires synchronization support". Boothby teaches separate status files for each pair of live data sets and ordered synchronization using the multiple status files, which would require availability of multiple source dataset clients. This teaches away from claim 2. This is an additional reason why claim 2 should be allowable over the cited references. Claim 16 should be allowable for at least the same reasons as claim 1, from which it depends.

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[1] Applicants respectfully request a direct response to the positions previously submitted, that (1) Boothby does not teach or suggest modifying the status file P to be a super-set of information from more than two data sets to which users desire synchronization; (2) Boothby provides objective evidence of non-obviousness (teaching away), because he approaches synchronization among more than two data sets in a different way, pair-wise instead of using a super-set data repository; and (3) modifying Boothby in the manner that the Examiner proposes would impermissibly change the principle of operation described by Boothby.

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For this response, Applicants will respond that **claims 3 and 17** are allowable for the same reasons as claim 1, from which they depend.

The Examiner next addresses claim 12, which depends from claim 11, so we address **claims 11 and 12** together, focusing on claim 11. To understand mapping and what Boothby does, we begin with the Official Action, page 4, where the Examiner cites Boothby col. 6, lines 40-49 and col. 7, lines 12-41, as "storing at least one mapping". These passages discuss the temporary synchronization workspace S. See, col. 5, lines 14-15 ("The synchronization workspace S is a temporary memory workspace used by the synchronization program."). The temporary synchronization workspace is not stored or otherwise persisted. Col. 4, lines 12-14 ("FIG. 2 shows a handheld database, status file, desktop database, and a temporary workspace ..."). What Boothby persists is the status file P. See, col. 5, lines 9-13 ("abbreviations: P for status file, N for handheld computer database, V for desktop computer database, and S for synchronization workspace"); col. 5, lines 45-51 ("The status file P, which is saved after a synchronization and used as input to the next synchronization, is a file containing one record per pair of synchronized handheld and desktop records. Each status file ... is identified by only one set of key fields or IDs.") The formats of Boothby's P, N, V and S files are depicted in Figure 2.

Turning to claims 11 and 12, the status file P that Boothby saves, stores or persists does not include first and second identifiers. Figure 2 makes clear that status file P does not include first and second identifiers and col. 5, lines 45-51 ("Each status file ... is identified by only one set of key fields or IDs") reinforces what is clear in the figure. The temporary workspace is where files are matched, using on-the-fly matching that Boothby refers to but does not describe. Col. 5, lines 6-9 ("The following descriptions assume that all of the corresponding records of the handheld database and the desktop database have already been mapped using such existing methods.") Again, the temporary workspace is not persisted, only the status file P. Also, Boothby emphasizes steps that minimize the size of the stored status file P. See, col. 8, lines 49-51. So Boothby teaches away from a file that persists first and second identifiers, preferring on-the-fly matching and minimized storage requirements for pairwise synchronization. Boothby's lack of a persistent mapping that includes at least a first and

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second identifier is a further reason that claims 11-12 should be allowable over the cited references.

The Examiner addresses **claims 5 and 6**, arguing that Boothby discloses a "grand unification database". Grand unification database is not a term commonly used in the art, so we consult the Summary of Invention for its meaning.

> The present invention introduces the notion of a reference database: the Grand Unification Database or GUD. By storing the data that is actually being synchronized (i.e., storing the actual physical body of a memo, for instance) inside an extra database (or by specially-designated one of the client data sets) under control of a central or core synchronization engine, rather than transferring such data on a point to point basis, the system of the present invention provides a repository of information that is available at all times and does not require that any other synchronization client (e.g., PIM client or hand held device) be connected. Suppose, for instance, that a user has two synchronization clients: a first data set residing on a desktop computer and a second data set residing on a hand held device. The GUD introduces a third data set, a middleware database. This third data set provides a super-set of the other two client data sets.

Applicants have reviewed col. 3, lines 15-23 and do not find GUD or anything GUD-like. This is an additional reason that claims 5 and 6 (and **claim 7** which depends from 6) should be allowable over the cited references.

The Examiner rejects **claims 9 and 18** "in the analysis of claim 1" without citing any passages or providing any analysis, other than reference to claim 1. We focus on claim 9, which adds to claim 1, "each data set comprises a plurality of data records, and wherein each data record is represented within the data repository." In Boothby, only the temporary workspace merges the contents of two data sets. As the temporary workspace is not persisted, it cannot serve as a data repository. This is an additional reason for claim 9 to be allowable over the cited art. For this response, Applicants respond that claim 18 is allowable for at least the same reasons as claim 1.

The Examiner next rejects **claims 10-11**, which we have addressed along with claim 12.

Claims 13-15 depend on claim 11 and, in turn claim 1. Claims 13-15 should be allowable for at least the same reasons as claims 1 and 11.

Regarding **claim 19**, the Examiner cites col. 6, lines 19-31, for the limitation, "wherein user information is stored at the data repository as unformatted blob data."

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The cited passage discusses generating a To-Do list and using a decision matrix. Applicants do not understand what this has to do with unformatted blob data.

Regarding **claim 20**, cols. 7 and 8, lines 26-67 and 1-51, for the method further including, "providing at least one type module for facilitating interpretation of user information stored as unformatted blob data at the data repository." The cited passage elaborates on generating a To-Do list and using a decision matrix. Applicants do not understand what this has to do with unformatted blob data.

That the passages cited regarding claims 19-20 do not have anything to do with blob data is a further reason why claims 19-20 should be allowable over the cited references.
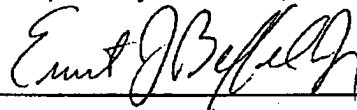
CONCLUSION

Applicants respectfully submit that the claims, as stated and amended herein, are in condition for allowance and solicit acceptance of the claims, in light of these remarks. If the Examiner disagrees and sees amendments that might facilitate allowance of the claims, a call would be appreciated.

Should any questions arise, the undersigned can ordinarily be reached at his office at 650-712-0340 from 8:30 to 5:30 PST, M-F and can be reached at his cell phone 415-902-6112 most other times.

Respectfully submitted,

Dated: 28 June 2004

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